Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A device for the synthesis of oligonucleotide arrays by photolithographic exposure of ~~biological substances~~ a surface, comprising:

at least one light source,

a ~~bundle of light-guide~~ plurality of light guided optical fibers, and

a control unit, wherein each of the optical fibers can be controlled independently of one another by light and/or light can be coupled to ~~these~~ each of the optical fibers, independently of one another.

2. (Original) The device according to claim 1, further characterized in that the light source emits monochromatic or continuous light in a wavelength range of 100 to 800 nm.

3. (Original) The device according to claim 2, further characterized in that the light source is a laser, a luminous diode, a metal-vapor lamp, a gas-discharge lamp, a gas-excitation lamp, an incandescent-filament lamp or an arc lamp.

4. (Previously presented) The device according to claim 1, further characterized in that luminous diodes and/or optical switches are arranged for the control of the individual optical fibers.

5. (Previously presented) The device according to claim 1, further characterized in that the substances to be exposed are introduced directly at the ends of the optical fibers.

6. (Previously presented) The device according to claim 1, further characterized in that the substances to be exposed are arranged on a separate support.

7. (Previously presented) The device according to claim 1, further characterized in that the substances to be exposed are arranged on a separate support, whereby this support is a DNA chip, a PNA chip or a peptide chip.

8. (Previously presented) The device according to claim 1, further characterized in that the device additionally comprises at least one detector.

9. (Original) The device according to claim 8, further characterized in that at least one of the detectors is arranged in such a way that it detects the light used for the exposure and/or at least one detector is arranged in such a way that it detects the light reflected from the exposed substances and/or produced by fluorescence and that optical fibers and/or bundles of optical fibers are optionally provided for light guiding for the detectors.

10. (Original) The device according to one of claims 8 or 9, further characterized in that the detectors are CCD detectors and/or CCD cameras.

11. (Previously presented) The device according to claim 1, further characterized in that a dynamic mask is provided for the control of the individual optical fibers.

12. (Previously presented) The device according to claim 1, further characterized in that a set of static masks is provided for the control of the individual optical fibers.

13. (Previously presented) The device according to claim 1, further characterized in that the light source emits a spectrum of wavelengths that bring about the deprotecting of nucleotides, nucleotide analogs and peptide nucleic acid building blocks for the elongation of the chain and for the construction of oligomers, and that between this light source and the substrate is arranged a bundle of optical fibers, to which light can be selectively coupled each time by targeted control, and that the solid phase on which the oligomer synthesis occurs is positioned precisely and rigidly behind

the bundle of optical fibers, and that the solid phase on which oligomer synthesis occurs is arranged in a chamber in which the solutions and/or reagents necessary for the DNA or PNA synthesis can be introduced onto this solid phase by other devices.

14. (Original) The device according to claim 13, further characterized in that a separate support is arranged as the solid phase on which oligomer synthesis occurs.

15. (Original) The device according to claim 13, further characterized in that the ends of the optical fibers themselves are the solid phase for conducting the oligomer synthesis.

16. (Currently amended) A method for the synthesis of oligonucleotide arrays by photolithographic exposure of ~~biological substances~~ a surface, whereby the ~~substances are arranged~~ nucleotides are generated on a surface or at the end of an optical fiber ~~and are exposed by means of~~ by exposure to light, which is guided by the optical fiber and which originates from a light source that is arranged at the other end of the optical fiber, whereby each exposure is made ~~at each~~ on a point of the surface which lies opposite ~~one~~ the end of the optical fiber, independently of the other points of the surface, and whereby the exposure pattern is selected in advance by means of a control unit.

17. (Currently amended) The method according to claim 16, ~~i.e., for the exposure of DNA or PNA chips,~~ wherein said biological substance is DNA or PNA and further characterized in that the wavelength of said light ~~of wavelengths which~~ is within a range sufficient to cause the deprotecting of nucleotides, nucleotide analogs and peptide nucleic acid ~~building blocks for the elongation of the chain and for the construction of oligomers is used~~ and that between ~~this~~ said light source and ~~the~~ substrate, a ~~bundle~~ plurality of optical fibers is ~~arranged,~~ positioned to which light ~~is~~ may be selectively coupled to each ~~time by targeted control~~ one and that the ~~solid phase~~ surface

on which the oligomer synthesis occurs is positioned precisely and rigidly behind ~~the bundle of~~ said optical fibers and that the ~~solid phase~~ surface on which ~~the~~ oligomer synthesis occurs is ~~arranged~~ positioned in a chamber in which ~~the~~ solutions and/or reagents necessary for ~~the~~ DNA or PNA synthesis are contained and are introduced onto ~~this solid phase~~ the surface by other devices.

18. (Currently amended) The method according to claim 16, ~~further characterized in that~~ wherein subsequent ~~hybridizations are conducted~~ to synthesis of DNA or PNA oligomers on the surface hybridization with a target DNA ~~after the oligomerization has been produced on the DNA or PNA chips~~ is carried out.

19. (Currently amended) The method according to claim 16, further characterized in that a device for the photolithographic exposure of biological substances is used for conducting the method, said device comprising at least one light source, a bundle of light-guide optical fibers, and a control unit, wherein each of the optical fibers can be controlled independently of one another by light and/or light can be coupled to ~~these~~ each of the optical fibers, independently of one another.

Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 1 and 2. These two sheets, which include Figs. 1 through 4, replace the original sheet including Figs. 1 through 4. In Figs. 1 and 2, the control S, which had been shown in the original sheet as being shared by both figures, is now shown separately in each figure. No new matter is added by these changes.

Attachment: Replacement sheets